CLAIMS

What is claimed is:

1   1.   A system in a device having at least one application data
2   destination having a format, comprising:

3   a difference engine receiving difference information
4   associated with a change to said at least one application data
5   destination; and

6   an application interface, applying said difference information
7   to said at least one data destination.

1   2.   The application of claim 1 wherein said difference engine
2   comprises:

3   a data store reflecting application data at a state prior to receipt of
4   said difference information; and

5   a delta engine receiving difference information and comparing
6   difference information to said data store to construct change information.

1   3.   The application of claim 2 wherein the difference information
2   comprises a data file containing change transactions which is combined
3   with data in the data store.

1   4.   The application of claim 2 wherein said application interface
2   applies said combined data to said application data destination.

1   5.   The application of claim 4 wherein said application interface

2   receives change information in a universal data format.

1   6.   The application of claim 1 wherein said application interface

2   comprises an input receiving universal format data from said difference

3   engine and an output to said application data destination format.

1   7.   The application of claim 6 further including a plurality of

2   application interfaces for a plurality of application data destination formats.

1   8.   The application of claim 1 further including a decryption

2   routine.

1   9.   The application of claim 8 wherein the decryption routine

2   decrypts the difference information prior to input to the difference engine.

1   10.   The application of claim 1 further including a compression

2   routine.

1   11.   The application of claim 10 wherein the compression routine

2   decompresses the difference information prior to input to the difference

3   engine.

1   12.   The application of claim 1 wherein the application interface

2   includes an extraction interface having an application data destination

3   format input and a universal data format output, and the differencing engine

4   includes a universal data input and a difference information output.

1   13.   The application of claim 12 wherein the device is coupled to

2   a network, difference engine includes a network interface and wherein the

3   difference engine outputs difference information via said network interface.

1   14.   The application of claim 1 wherein the device is coupled to a

2   network and difference engine includes a network interface.

1   15.   The application of claim 14 wherein the difference engine

2   receives said difference information via said network interface.

1   16.   The application of claim 1 further including a versioning

2   module coupled to the difference engine.

1   17.   The application of claim 16 wherein the versioning module

2   determines a version of said difference information.

1   18.   The application of claim 1 further including an event trigger.

1   19.   The application of claim 18 wherein the event trigger enables

2   receipt of said difference information by the application.

1   20.   An application for applying changes to data from a source to

2   a destination having a destination format, comprising:

3   a difference information selection routine; and

4   a difference reconstruction routine.

1   21.   The application of claim 20 wherein the difference information

2 selection routine includes:

3   a data store reflecting the state of the data prior to receipt of said

4 difference information; and

5   a delta engine receiving difference information and comparing

6 difference information to said data store to construct changed information.

1   22.   The application of claim 21 wherein the difference information

2 comprises a set of transactions which is compared to the data store.

1   23.   The application of claim 21 wherein said difference

2 information reconstruction routine includes a translator receiving changed

3 information in a universal format data from said difference information

4 selection routine and outputting changes to said data in the destination

5 format.

1   24.   The application of claim 23 further including a plurality of

2 application interfaces for a plurality of destination formats.

1   25.   The application of claim 20 further including:

2   a construction routine having an extraction interface including an

3 destination format input and a universal data format output, and wherein

4   said difference information selection routine reads said universal data

5   output to generate change transactions indicating changes to the

6   destination data.

1   26.   The application of claim 25 wherein the device is coupled to

2   a network, the difference engine includes a network interface and wherein

3   the difference engine outputs change transactions via said network

4   interface.

1   27.   The application of claim 21 wherein the device is coupled to

2   a network and difference engine includes a network interface.

1   28.   The application of claim 21 wherein the difference information

2   selection routine receives said difference information via said network

3   interface.

1   29.   A method for updating data files in a system, comprising:

2   (A)   receiving difference information for a subset of said

3   data files; and

4   (B)   applying said difference information to said subset of

5   said data files.

1   30.   The method of claim 29 wherein said step of receiving

2   comprises:

3 (i) receiving a change log detailing changes to data files on
4 another system; and

5 (ii) applying said changes to a data store containing data
6 identical to said data files to generate changed data.

1 31. The method of claim 30 wherein said step (i) comprises
2 generating changes to said data in a universal data format.

1 32. The method of claim 31 wherein said step (B) comprises:

2 converting said changes in said universal data format to an
3 application specific format; and

4 updating said data with changes to said data.

1 33. An application in a system having a data source in a source
2 format, comprising:

3 an application interface extracting data from said data
4 source; and

5 a difference engine receiving said data and outputting
6 difference information associated with changes to said data source.

1 34. The application of claim 33 wherein the application interface
2 includes a source format interface; and

3 a converter to map said data from said source format into a universal
4 format.

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1   35.   The application of claim 33 wherein said difference engine
2   comprises:

3   a data store reflecting a prior state of said data; and

4   a delta generator comparing said data and said data store to provide
5   change transactions.

1   36.   The application of claim 34 wherein said application interface
2   extracts data from said data source.

1   37.   The application of claim 36 wherein said application interface
2   converts source data to a universal data format.

1   38.   The application of claim 33 wherein said application interface
2   includes an input receiving source format data and an output providing
3   universal format data.

1   39.   The application of claim 35 further including a plurality of
2   source format interfaces for a plurality of source formats.

1   40.   The application of claim 33 further including a decryption
2   routine.

1   41.   The application of claim 40 wherein the decryption routine
2   decrypts the difference information following output from the difference
3   engine.

1   42.   The application of claim 33 further including a compression

2   routine.

1   43.   The application of claim 42 wherein the compression routine

2   decompresses the difference information following output from the

3   difference engine.

1   44.   The application of claim 33 wherein the application interface

2   includes an reconstruction interface having a source format output and a

3   universal data format input, and the differencing engine includes a

4   universal data output and a source format input.

1   45.   The application of claim 44 wherein the device is coupled to

2   a network, difference engine includes a network interface and wherein the

3   difference engine receives difference information via said network interface.

1   46.   The application of claim 33 wherein the device is coupled to

2   a network and difference engine includes a network interface.

1   47.   The application of claim 46 wherein the difference engine

2   outputs said difference information via said network interface.

1   48.   The application of claim 33 further including a versioning

2   module coupled to the difference engine.

1   49.   The application of claim 48 wherein the versioning module

2   determines a version of said difference information.

1   50.   The application of claim 33 further including an event trigger.

1   51.   The application of claim 50 wherein the event trigger enables
2   receipt of said difference information by the application.

1   52.   An application in a device for distributing changes made to
2   device data in a system specific format, comprising:

3   a device data extraction routine; and

4   a change transaction generation routine.

1   53.   The application of claim 52 wherein the change transaction
2   generation routine includes:

3   a data store reflecting the state of the device data prior to generation
4   of said change transactions; and

5   a delta engine generating change transactions by comparing said
6   data to said data store to construct change transactions.

1   54.   The application of claim 52 wherein said device data
2   extraction routine includes a translator reading changes to said data in the
3   system specific format and outputting change information in a universal
4   data format.

1   55.   The application of claim 54 further including a plurality of

2 application interfaces for a plurality of system specific formats.

1 56. The application of claim 52 further including:-

2 a construction routine having an extraction interface including an

3 system specific format input and a universal data format output, and

4 wherein said change transaction generation routine reads said universal

5 data output to generate change transactions for said data.

1 57. The application of claim 56 wherein the device is coupled to

2 a network, the change log generation routine includes a network interface

3 and wherein the change log generation routine outputs difference

4 information via said network interface.

1 58. The application of claim 52 further including:

2 code for applying change transactions to the device data from a

3 source in the system specific format, comprising:

4 a difference information selection routine;

5 a database reflecting the state of the data at state prior to receipt of

6 source difference information; and

7 a delta engine receiving source difference information and comparing

8 difference information to said database to construct change information for

9 the device data; and

10 a difference reconstruction routine applying the change information

11 to the device data.

1 59. A method for updating a data source in a system, comprising:

2   extracting difference information from at least a subset of said data

3   source; and

4   outputting difference information for at least the subset of said data

5   source.

1   60.   The method of claim 59 wherein said step of outputting

2   comprises:

3   determining whether changes have been made to the subset of data

4   source in the system; and

5   generating a change log detailing changes to the subset of data

6   source on another system

1   61.   The method of claim 59 wherein said step of determining

2   comprises:

3   comparing data from said subset of data source to a data

4   store reflecting a previous state of the data source.

1   62.   The method of claim 59 wherein said generating step

2   comprises generating changes to said data in a universal data format.

1   63.   The method of claim 62 further including the step of:

2   receiving change information for said data source;

3   converting said change information into updated source data; and

4   updating said source with changes to said updated source data.

1   64.   An application in a system containing a plurality of data files,

2   comprising:

3   an extraction routine for extracting a first set of difference

4   information resulting from changes to the data files;

5   a differencing transmitter for transmitting said first set of

6   difference information to an output;

7   a differencing receiver for receiving a second set of difference

8   information from an input; and

9   a reconstruction routine for applying the second set of

10   difference information to the data files.

1   65.   The application of claim 64 wherein said difference routine

2   comprises:

3   a data store reflecting the state of the data files at a state prior to

4   receipt of said difference information; and

5   a delta engine receiving difference information and comparing

6   difference information to said data store to construct change information.

1   66.   The application of claim 64 further including a decryption

2   routine.

1   67.   The application of claim 64 further including a compression

2   routine.

1   68.   The application of claim 64 wherein the system is coupled to

2   a network, and the first and second set of difference information is received

3   from and output to the network.

1   69.   The application of claim 64 further including a versioning

2   module coupled to the difference engine.

1   70.   A method for updating data files in a system, comprising

2   receiving first change transactions for a subset of said data

3   files;

4   applying said change transactions to said subset of said data

5   files.

6   subsequent to a change in said data files, generating second

7   change transactions for said files; and

8   outputting said second change transactions to an output.

1   71.   The method of claim 70 wherein said receiving step

2   comprises parsing a data stream to extract change transactions identified

3   for the subset of said data files.

1   72.   The method of claim 70 wherein said step of applying

2   comprises comparing said change transactions to a data store including

3   data in said subset of data files.

1   73.   The method of claim 72 wherein said data store includes said

2   data in a universal data format.

1   74.   The method of claim 70 wherein said step of generating

2 includes assigning a universal identification to each change transaction.

1   75.   The method of claim 74 further including the step of identifying

2 each change transaction with a version.

1   76.   A device engine, comprising:

2   an application object;

3   an application object store; and

4   a delta module.

1   77.   The device engine of claim 76 including a plurality of

2 application objects.

1   78.   The device engine of claim 77 further including a compression

2 algorithm.

1   79.   The device engine of claim 78 further including an encryption

2 algorithm.

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